

# Measure Up

Spring 2007

Assessment news for twelfth-grade teachers



## **Facts About NAEP 2007**

- From January 22 to March 2, 2007, over 20,000 twelfth-graders participated in the NAEP writing or reading assessment.
- Approximately 500 high schools participated.
- Over 5,200 NAEP staff administered the assessment to students in grades 4, 8, and 12 across the country.
- On average, 2,600 schools were assessed nationwide at grades 4, 8, and 12 each week of the assessment period.

## Reading and Mathematics: 2005 12th Grade Results

In 2005, a representative sample of over 21,000 high school seniors from 900 schools across the country was assessed in reading or mathematics. A summary of the results appears below.

### **Reading performance declines for all but top performers:**

- In 2005, the average reading score for high school seniors was 286 on a 0-500 scale. This overall average was lower than in 1992, although it was not significantly different from the score in 2002. With the exception of the score for students performing at the 90th percentile, declines were seen across most of the performance distribution in 2005 as compared to 1992.
- White and Black students were the only racial/ethnic groups to show a statistically significant change in reading performance, scoring lower in 2005 than in 1992.
- The score gaps between White and Black students and White and Hispanic students were relatively unchanged since 1992.

- Both male and female students' scores declined in comparison to 1992, and the performance gap between the genders widened with female students outscoring male students.
- The percentage of students performing at or above *Basic* decreased from 80 percent in 1992 to 73 percent in 2005, and the percentage of students performing at or above the *Proficient* level decreased from 40 to 35 percent.

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*On the reading assessment, retrieving information from a highly detailed document is an example of the knowledge and skills demonstrated by students performing at the Basic level. Making a critical judgment about a detailed document and explaining their reasoning is an example of the knowledge and skills associated with students' performance at the Proficient level.*

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# High School Transcript Study—2005 Results



**The NAEP High School Transcript Study (HSTS) collects and analyzes transcripts from a representative sample of America's public and private high school graduates. The study is designed to inform the public about the types of courses that graduates take during high school, how many credits they earn, and their grade point averages (GPAs).**

The HSTS also explores the relationship between course-taking patterns and student achievement, as measured by the NAEP. High school transcript studies have been conducted periodically for nearly two decades, permitting the reporting of trends in course-taking and GPA as well as providing information about recent high school graduates.

Early in 2007, the results of the 2005 HSTS were released to the public. The report was based on transcripts collected from about 640 public schools and 80 private schools. These transcripts constituted a nationally representative sample of 26,000 high school graduates. Because the study is restricted to high school graduates, it contains no information about dropouts. Below are some highlights of the results. For the full report, visit <http://nationsreportcard.gov>.

## Defining Curriculum Levels

For the HSTS, curriculum levels are defined by the number of course credits earned by graduates in specified types of courses during high school as follows:

- **Standard**—at least four credits of English and three each in social studies, mathematics, and science.
- **Mid-level**—in addition to standard courses, geometry and algebra I or II must be completed; at least two courses in biology, chemistry, and physics; and at least one foreign language credit.
- **Rigorous**—in addition to mid-level courses, an additional credit in mathematics including pre-calculus or higher; biology, chemistry, and physics; and at least three foreign language credits.

- In 2005, graduates earned about three credits more than their 1990 counterparts, or about 360 additional hours of instruction during their high school years.
- In 2005, the overall GPA was approximately a third of a letter grade higher than in 1990.
- Graduates whose highest mathematics course was geometry or below had average NAEP mathematics scores below the *Basic* achievement level. Graduates who took calculus had average NAEP scores at the *Proficient* level.
- Graduates whose highest science course was chemistry or below had average NAEP science scores below the *Basic* achievement level, while those who had completed physics or other advanced science courses had average scores at the *Basic* level.
- Male and female graduates' GPAs overall and in mathematics and science have increased since 1990. Female graduates' GPAs overall and in mathematics and science were higher than the GPAs of male graduates during each year the HSTS was conducted.
- In 2005, a higher percentage of female than male graduates completed a rigorous or mid-level curriculum, compared to 1990 when there was no significant difference in the percentages of males and females completing at least a mid-level curriculum.
- Increased percentages of White, Black, Hispanic, and Asian/Pacific Islander graduates completed at least a mid-level curriculum in 2005 compared with 1990. The GPAs of all four racial/ethnic groups also increased during this time.
- Since 1990, Black graduates have closed a 6 percentage point gap with White graduates in the percentage completing at least a mid-level curriculum; however, the corresponding White/Hispanic gap in 2005 was not significantly different from that in 1990.
- In 2005, both Black and Hispanic graduates were less likely than White graduates to have completed calculus or advanced science courses and to have higher GPAs.

Citation: Shettle, C., Roey, S., Mordica, J., Perkins, R., Nord, C., Teodorovic, J., Brown, J., Lyons, M., Averett, C., Kastberg, D. (2006). *The Nation's Report Card: America's High School Graduates* (NCES 2007-467). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

# Reading and Mathematics: 2005 12th Grade Results

(Continued from page 1)

## Less than one-quarter perform at or above Proficient in mathematics:

- The 2005 mathematics assessment is based on a new framework and includes more questions on algebra, data analysis, and probability to reflect changes in high school mathematics standards and coursework. Even though many questions were repeated, results could not be placed on the old NAEP scale and could not be directly compared to previous years. The twelfth-grade average in 2005 was set at 150 on a 0-300 scale.
- Sixty-one percent of high school seniors performed at or above the *Basic* level, and 23 percent performed at or above *Proficient*.
- Asian/Pacific Islander students scored higher than students from other racial/ethnic groups, and White students scored higher than their Black and Hispanic counterparts.
- Male students scored higher on average than female students overall and in the “number properties and operations” and the “measurement and geometry” content areas. ■

*On the mathematics assessment, demonstrating the ability to use the Pythagorean Theorem to determine the length of a hypotenuse is an example of the skills and knowledge associated with performance at the Basic level. An example of the knowledge and skills associated with the Proficient level is using trigonometric ratios to determine length.*

## Sample Multiple-Choice Reading Question

As part of the 2005 reading assessment, 12th-graders were presented with a Metro Guide to a city's transit system.



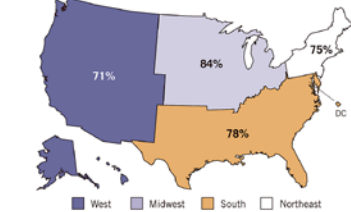
The multiple-choice question presented below required students to make a simple inference based on explicit information in the Metro Guide.

- According to the guide, at which of the following times of day would the reduced Metrorail fare be in effect?
- Ⓐ 5:30 a.m.      Ⓒ 3:00 p.m.  
Ⓑ 6:00 a.m.      Ⓓ 7:30 p.m.

In addition to the overall percentage of students who answered the question correctly, the percentage of students at each achievement level who answered correctly is presented.

Percentage correct overall and at achievement levels in 2005				
Overall	Below Basic	At Basic	At Proficient	At Advanced
77	48	81	93	98

Percentage of correct 12th-grade student responses in 2005, by region

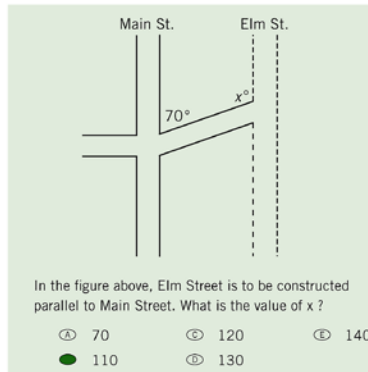


SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Reading Assessment.

Full information, including reading passages, is available for NAEP reading questions of various types and difficulty levels at <http://nces.ed.gov/nationsreportcard/itmrts>.

## Sample Multiple-Choice Mathematics Question

The following multiple-choice question comes from the measurement and geometry content area. The question required students to determine an angle formed by a cross street between two parallel streets.

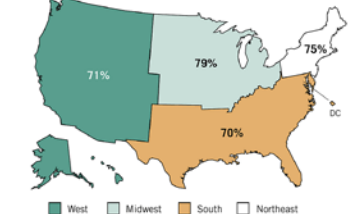


In addition to the overall percentage of students who answered the question correctly, the percentage of students at each achievement level who answered correctly is presented.

Percentage correct overall and at achievement levels in 2005				
Overall	Below Basic	At Basic	At Proficient	At Advanced
73	49	83	96	†

† Reporting standards not met. Sample size was insufficient to permit a reliable estimate.

Percentage of correct 12th-grade student responses in 2005, by region



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Mathematics Assessment.

Full information is available for NAEP mathematics questions of various types and difficulty levels at <http://nces.ed.gov/nationsreportcard/itmrts>.

**For more information and to access the full report, visit:**  
**<http://nationsreportcard.gov>**

Citation: Grigg, W., Donahue, P., and Dion, G. (2006) *The Nation's Report Card: 12th Grade Reading and Mathematics 2005* (NCES 2007-468). U. S. Department of Education National Center for Education Statistics. Washington, D.C.: U.S. Government Printing Office.

## Did you know?

- The results for the 2007 twelfth-grade writing assessment are expected to be released sometime in 2008.
- You can access released assessment items and create your own assessments by visiting <http://nces.ed.gov/nationsreportcard/itmrls>.
- There are over 450 released twelfth-grade questions on the NAEP Questions Tool online.

**NAEP results are reported in two ways—scale scores and achievement levels**—so that student performance can be more easily understood. NAEP scale scores are reported on either a 0-300 or 0-500 scale for each grade, depending on the subject. Achievement levels categorize student achievement as *Basic*, *Proficient*, and *Advanced*, using ranges of performance established for each grade. The achievement levels are based on collective judgments about what students should know and be able to do relative to the body of content reflected in each subject-area assessment. Policy definitions of the three levels are:

<b>Basic</b>	Denotes partial mastery of knowledge and skills that are fundamental for proficient work at each grade.
<b>Proficient</b>	Represents solid academic performance. Students reaching this level have demonstrated competency over challenging subject matter.
<b>Advanced</b>	Signifies superior performance.

NAEP scales are developed independently for each subject, so scale score and achievement level results cannot be compared across subjects

## If you want to...

## Visit...

<b>Learn</b> more about NAEP results	The Nation's Report Card at <a href="http://nationsreportcard.gov">http://nationsreportcard.gov</a>
<b>View</b> NAEP data for a particular state or contact your NAEP State Coordinator	The National Center for Education Statistics at <a href="http://nces.ed.gov/nationsreportcard/states">http://nces.ed.gov/nationsreportcard/states</a>
<b>Access</b> specific results for a grade level, subject, jurisdiction, and/or student groups	The NAEP Data Explorer at <a href="http://nces.ed.gov/nationsreportcard/nde">http://nces.ed.gov/nationsreportcard/nde</a>
<b>Find</b> information regarding the types of questions used on NAEP assessments or to view subject-specific questions	The NAEP Questions Tool at <a href="http://nces.ed.gov/nationsreportcard/itmrls">http://nces.ed.gov/nationsreportcard/itmrls</a>
<b>Download</b> a Sample Questions Booklet that contains sample test questions for NAEP assessments	The National Center for Education Statistics at <a href="http://nces.ed.gov/nationsreportcard/about/booklets.asp">http://nces.ed.gov/nationsreportcard/about/booklets.asp</a>
<b>Learn</b> more about how policy is drafted for each NAEP assessment	The National Assessment Governing Board at <a href="http://www.nagb.org">http://www.nagb.org</a>
<b>Offer</b> a comment or suggestion on NAEP	The National Center for Education Statistics mailbox at <a href="http://nces.ed.gov/nationsreportcard/contactus.asp">http://nces.ed.gov/nationsreportcard/contactus.asp</a>

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